

# MARINE REVIEW.

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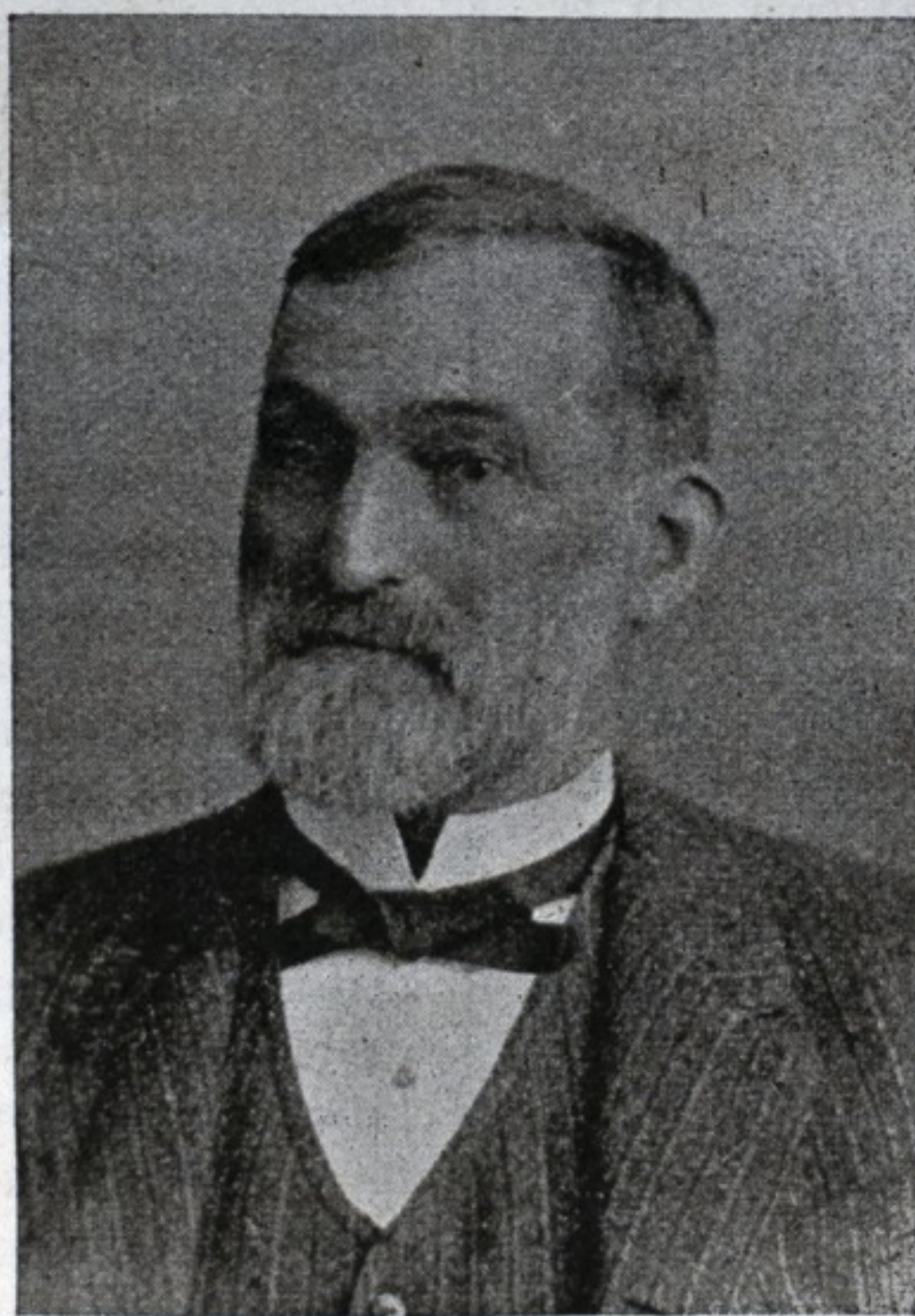
No. 2.

## Death of Capt. Ira H. Owen.

In the death of Capt. Ira H. Owen at his home in Oak Park, near Chicago, July 2, the lake marine loses one of the best representatives and many men of the lakes a kind and loyal friend. Capt. Owen was one of the noblest examples of the successful sailor and vessel master. Born in Conneaut, O., sixty-eight years ago, he had gone to sea when fourteen years old. He had been to sea, either in person or in business ever since. Fifty-four years in active service on the lakes! How few are the old timers becoming! As a navigator it was his proud boast that he never had a vessel in serious trouble. His only loss was of a schooner of which he was half owner and master when nineteen years of age. He was ashore that trip, and the boat was never heard from after leaving port. After he had sailed for over thirty years he began carrying iron ore from Escanaba to the North Chicago rolling mills. He was the pioneer of that great trade. How well and honestly he did the work was shown by the presence of O. W. Potter and Mr. Hanna, the iron magnates, at his funeral

to pay their last tribute to his worth. After several years he marine men in Chicago. Mrs. Owen, to save whose life Capt. Owen gave up his own, is slowly recovering. Although death came in early morn, she was not informed of it until her wifely instincts, even as she lay at death's door, told her the awful truth, and she compelled by her questioning a confession from her attendants.

The day of Capt. Owen's death Chicago vesselmen met and adopted appropriate resolutions as their tribute to the dead. The managers of the Lake Carriers' Association of which Capt. Owen was one of the vice-presidents, also adopted resolutions in Buffalo on the 6th inst. expressing deep regret over the great loss sustained by the association and the lake marine interests. William R. and Ira D. Owen, the captain's only children, are worthy successors. William R. Owen has had practical charge of the business for many months and has amply proved his competency to manage it. The signal cord of the dead vessel owner thus falls into hands well fitted to handle it.



CAPT. IRA H. OWEN.

sold out his interest in that traffic to the Inter-Ocean Transportation Company, controlled by the rolling mill company and began his successful career in general lake carrying. With each succeeding year his business interests extended until at the time of his death he was undoubtedly the leading vessel owner of Chicago. Among the companies of which he was the controlling spirit were the Delta Transportation Company, plying between Petoskey and Mackinac island (inland route) and Mackinac island and Sault Ste. Marie, the Escanaba Towing and Wrecking Company, the Escanaba & Lake Michigan Transportation Company and the Owen Line, besides extensive interests in Chicago. What might justly be called the Owen boats were the Parks Foster, Ira H. Owen, Escanaba, Rhoda Emily, Argonaut, Soo City, now in the Northern Michigan Line from Chicago, the Minnie N., Romeo and Juliet and tugs Monarch, Delta and Owen.

At the funeral Friday a large delegation attested their regard for their dead associate. Nearly every boat in Chicago hung its colors at half mast, and a more general expression of regard for Capt. Owen and regret was given than has often fallen to

## Secret Cause of Collisions.

The following instance is given by Capt. Gibson of the steamer America, who has sailed the lakes for thirty years, excepting the time he was supervising inspector of steam vessels at Buffalo, and is therefore worthy of consideration: While the America was off Eagle Harbor on a trip early in June a heavy fog came up about 11 o'clock in the morning. The America was in company with several steamers and the officers were therefore keeping a good lookout. A signal of three long whistles and a short one was faintly heard and was located abeam several miles. A minute later a steam barge and four-masted consort passed close a-port and the captain of the steamer was using language that indicated he had been whistling and failed to get a reply from the America. Failure to hear the steamer's whistle might have been charged to inattention, but about an hour later one of the Minnesota boats was seen a half mile ahead and the mate of the America asked if any one could hear her whistle. No whistle was heard but the steam from the whistle was visible, the fog having lifted somewhat. Suppose, for instance, the Minnesota boat and the America had been head on and a collision had occurred. Both crews could have sworn that the other boat blow no whistle.



### General Poe's Report on St Mary's Falls Canal Business.

On authority from Gen. Cassy, chief of engineers of the war department, we have received from Gen. Poe of Detroit a copy of the statement of results obtained from a discussion of the business of the Sault Ste. Marie canal during 1890. The statement is in the form of a report to the chief of engineers and will be included in Gen. Poe's annual report for the fiscal year ending on June 30 last. It is in two parts, one containing the data with all its detail and explanations as to how it was secured by the officers of the canal, and the other summarizing the different features of the work. The latter part of the report covers all the ground and is here presented in full:

UNITED STATES ENGINEER OFFICE,  
34 West Congress st., Detroit, Mich., May 14, 1891.

Brigadier General THOMAS LINCOLN CASEY,  
Chief of Engineers, U. S. Army, Washington, D. C.

SIR:—I have the honor to submit the following discussion of the statistics of St. Mary's Falls canal for the season of 1890. The work was done by Mr. Andrew Jackson, clerk of the canal, assisted by Assistant Superintendents Smith and Spalding, Office Watchmen McMahon and W. H. Smith, and Lockman W. H. Thompson. The discussion is similar to those made for 1887, 1888 and 1889 and is interesting, as well as of practical value quite sufficient to compensate for the considerable labor involved. For the details I refer to Mr. Jackson's report, and especially notice that the cost of transportation by this route for the season was at the rate of 1.3 mills per ton per mile.

Probably the most significant fact developed by the discussion is the evidence of the rather remarkable speed attained by many of the new and large freight steamers. Mr. Jackson refers to the case of the Manola which reported at the canal an aggregate of 49,201 miles run during the season, on voyages which included the canal; and states that this was 15,857 miles greater than the largest reported by any vessel in any preceding season. But the Manola made one trip to Escanaba, and by adding the length of this voyage to the above aggregate, the sum, 50,580 miles, represents the actual result accomplished by this steamer in 223 days. It is not improbable that this is the greatest distance ever run by one steamer in the same length of time. Her owners state that her average time in port, on each round trip, was 19½ hours.

An examination of the data shows that there were eleven steamers which made aggregate runs of between 30,000 and 40,000 miles each during the season; and one other than the Manola that ran over 40,000 miles. It has been stated that the aggregate voyages last season, of several steamers running between Chicago and Buffalo—and therefore not passing through St. Mary's Falls canal—amounted to more than 40,000 miles each, and that two of them, the Hudson and Harlem, made over 48,000 miles each. These statistics show that the capacity of the lake steamers for doing work is being increased in the direction of speed as largely as in other ways.

As this is the fourth year in which the statistics have been discussed in this manner, it has been thought advisable to compile the following table in order that the variation in freight rates for that time might be readily compared. It will be observed that the average rates have been steadily reduced. The average distance that the freight is carried, varies slightly each year, but remains always very near 800 miles:

FREIGHT RATES ON ARTICLES OF COMMERCE THROUGH THE CANAL.

ITEMS.	DESIGNATION.	1887. Average Cost per Unit.	1888. Average Cost per Unit.	1889. Average Cost per Unit.	1890. Aver. Cost per Unit.
Coal.....	Net tons.	90	70	47	45
Flour.....	Barrels.	29	17½	18	13
Wheat.....	Bushels.	Included in Grain.	03½	04	03
Grain.....	"	07	Included in Corn and Oats	03¾	
Corn.....	"	Included in item of Grain.	04½	Included in item of Grain.	03
Oats.....	"		05		02
Manuf'd Iron..	Net tons.	2 35	1 80	2 10	1 34
Pig Iron.....	"	Included in manf. Iron.	1 30	1 45	1 35
Salt.....	Barrels.	18	16	18	15
Copper.....	Net tons.	2 60	2 35	2 25	2 38
Iron Ore.....	"	1 75	1 28	1 14	1 10
Lumber.....	M.ft.b.m.	4 00	2 80	2 70	2 38
Silver Ore and Bullion.....	Net tons.	3 00	1 90	1 90	2 25
Building Stone	"	1 15	2 05	2 07	2 00
General Mdse.	"	4 00	3 00	3 00	2 75
TOTAL COST OF TRANSPORTAT'N		\$10,075,153 13	\$7,883,077 40	\$8,634,246 63	\$9,472,214 90

1887	Average distance freight was carried, 811 4-10 miles.	Average dist. freight was carried 801½ miles.
1888	" " " " " 806 9-10 "	
1889	" " " " " 790 4-10 "	
1890	" " " " " 797 2-10 "	

For the last four years the average cost of transportation, per ton per mile, by this route, terminal charges included, has been as follows:

For 1887.....	2.3 mills per ton per mile.
" 1888.....	1.5 " " "
" 1889.....	1.5 " " "
" 1890.....	1.3 " " "

For the same period the total valuation of all vessels using the canal has been as follows:

For 1887.....	\$19,773,950
" 1888.....	21,895,200
" 1889.....	26,926,200
" 1890.....	29,635,500

The total cost of carrying the freight has been as follows:

For 1887.....	\$10,075,153
" 1888.....	7,883,077
" 1889.....	8,634,247
" 1890.....	9,472,215

It appears that in 1887 the freight rates (nearly twice as great as in 1890) were so high that, in the aggregate, more was paid during that year for transporting the freight, than during any of the three subsequent years.

In addition to the results given above, it was ascertained, by a discussion of the watchman's record kept at the head and foot of the canal, that the total time spent by all registered craft in passing the canal during 1890, was 48,144 hours 17 minutes. Hence the average time so spent by each of the 10,140 vessels of this class was 4 hours 46 minutes. This total contains the time lost by vessels during the suspension of navigation caused by the breaking of one of the emptying valves of the lock. The aggregate of this time was 11,119 hours 26 minutes, and the number of vessels was 264; subtracting these numbers from the corresponding, it is found that the aggregate time of passing the canal by all vessels, exclusive of the 264 that were delayed by the broken valve was 3 hours 45 minutes. Since many vessels remain at the canal a considerable time for their own convenience (e. g. waiting for daylight, better weather, &c &c) the preceding average time is larger than that actually necessary for passing the canal. In order to determine the proper deduction to be made on this account, Assistant Superintendent Reuben Smith tabulated all delays that were clearly of this character and reported that the aggregate was 17,482 hours 30 minutes. Subtracting this amount and deriving a third average, it is found that the average time that the vessels necessarily spent in passing the canal during the season of 1890, excluding those that were delayed by the broken valve, was 1 hour 59 minutes.

The canal records show that the draw of the railroad bridge was closed 413 hours 45 minutes, during the season of 1890; also that during the same season the bridge was detained by vessels 7 hours 12 minutes, and that vessels were delayed by the bridge an aggregate of 34 minutes.

Your obedient servant,

O. M. POE,

Colonel, Corps of Engineers,  
Bvt. Brig. Gen., U. S. Army.

### The Sault Water Power Project.

The head and tail races now being constructed in the water power works at Sault Ste. Marie, Ont., are to give 10,000 horse powers of water power, a small fraction only of the total power of the rapids. The expenditure for the 10,000 horse powers will be about \$150,000. The work is expected to be completed this season. Mr. Luke Madigan is the contractor and John A. Wilde is the resident engineer. The works have been planned by, and are under the general supervision of J. T. Fanning of Minneapolis as consulting engineer. The Sault Ste. Marie canal lock now being constructed by the Dominion government adjoins the water power works.

The rapids are about one-half mile in length and down them flows the water from the basin of Lake Superior to Lake Huron, the fall between the lakes being eighteen feet. The rapids are divided into two channels by St. Mary's island. The northerly or Ontario channel is favorably adapted for use as the site of a water power while the flow of water from Lake Superior will give a great source of power. The town of Sault Ste. Marie in Ontario lies at the foot of the rapids, and its citizens are so interested in the development of this power that the town has purchased a majority of the stock of the water power company. The construction of the power is promoted both by the town, of which Henry C. Hamilton is mayor and by the water power company, of which D. McGregor is president.



## Record of Speed and Big Cargoes.

[Masters or owners are invited to report improvement on this list.]

Iron ore: Lake Michigan—Maryland, Inter-Ocean Transportation Company, of Milwaukee, 3,322 gross, or 3,737 net tons from Escanaba. Lake Superior—E. C. Pope, Dry Dock Navigation Company, of Detroit, 2,718 gross, or 3,074 net tons from Ashland, light draft.

Grain: W. H. Gilcher, J. C. Gilchrist, of Cleveland, 114,982 bushels of corn, Chicago to Buffalo; America, M. M. Drake, of Buffalo, 111,507 bushels of corn, Chicago to Buffalo.

Speed: Owego, Union Line, of Buffalo, Buffalo to Chicago, 889 miles, 54 hours and 16 minutes, 16.4 miles an hour; Saranac, Lehigh Valley Line, of Buffalo, Buffalo to Lime-Kilns, 240 miles, 15 hours and 10 minutes, 16 miles an hour.

## Iron Mining.

VALUE OF LEADING STOCKS.

Quoted by Chas. H. Potter & Co., No. 104 Superior St.

Stocks.	Par Value.	Bid.	Asked.
Cleveland-Cliffs Iron Company.....	\$100 00	\$.....	\$ 80 00
Champion Iron Company.....	25 00	.....	82 00
Chandler Iron Company.....	25 00	37 00	39 00
Chicago and Minnesota Ore Company.....	100 00	.....	95 00
Jackson Iron Company.....	25 00	90 00	100 00
Lake Superior Iron Company.....	25 00	51 00	52 00
Minnesota Iron Company.....	100 00	70 00	72 00
Pittsburg Lake Angeline Iron Co .....	25 00	.....	140 00
Republic Iron Company.....	25 00	29 50	31 00

On July 9 of last year there had been shipped from Lake Superior mines 3,180,299 gross tons of ore. On July 1 of this year shipments from Two Harbors, Ashland and Gladstone amounted in the aggregate to 494,889 tons. The railway companies handling the ore at Escanaba and Marquette have refused so far this year to give information regarding the movement from these ports but the decrease is equally important. It is evident that shipments from all ports to July 1 are little more than 25 per cent. of what they were a year ago. Shipments from the different Ashland mines to July 1 are: Ashland 38,678 tons, Aurora 18,266, Colby-Tilden 6,552, Montreal South 6,746, Palms 4,319, Sec. 33 South 5,104, West Cary 17,775, Father Hennepin 8,653, Germania 1,768, Mt. Hope 12,851, Norrie 69,825, East Norrie 29,289, Eureka, 3,497, Pabst 35,791, Ruby 384, Sunday Lake 4,545. Total 264,048 tons. The Minnesota mine had shipped July 1, 105,426 tons and the Chandler 89,516 tons. The Ludington mine on the same date had shipped 35,917 tons from Gladstone.

In reviewing matters in and around the Republic mine, Iron Ore of Ishpeming says: "Explorations with the diamond drill are being conducted at a point removed from the north end of the mine something like a quarter of a mile, this in the hope of finding other lenses in that direction. Years ago the company operated what was known as the Kingston pit on the opposite side of the Michigamme river, and the management is still desirous of testing the ground between this point and the main mine workings. Several holes were bored last winter. Preparations are now being made for another still further northwest than any yet put down. A shaft is being sunk to reach the ledge but the work is greatly hindered by the presence of a large number of boulders. It is thought that a depth of something like 50 feet will be necessary to reach the desired point. Should a lens of ore be revealed here it would be a good thing for the company. The work of boring has been systematically conducted. The line of cleavage of the huge lean ore outcrop to the east has been secured, and the drill has cut at right-angles to this. It would seem that ore would be encountered here."

The shaft at the Mansfield mine, according to the Diamond Drill is being lowered to the fourth level, although there is yet an abundance of ore in the second and third levels. The company has sold 25,000 tons of ore and has shipped about 12,000 tons. The stock pile, which contained about 16,000 tons at the opening of the season, has been reduced to about half its original size. A diamond drill will soon be used at a point midway between the Mansfield shaft and the shaft at the old Caledonia workings. The ore in this locality is banded with jasper, but it is thought that depth will leave the jasper behind and give a vein of clean ore. The product of the Mansfield is a Bessemer.

The final volume on Mines and Mining, of the Eleventh census, shows the total value of the mineral products of the United

States in 1889-90 to have been \$556,988,450, the largest total ever reported for any country. "It far outstrips the product of Great Britain." The total number of industrial mining establishments was 30,000, and the number of persons who find employment in the mining industry was 512,114. The annual wages paid them aggregated \$212,409,809, and the capital employed in actual mining operations amounted to \$1,173,000,000.

The Port Arthur, Duluth & Western Railway, which will open up, in connection with the Ontario & Rainy River Railway, the Atikokan and other iron ranges beyond Port Arthur is now in operation for construction purposes from Port Arthur to Whitefish bay. It is expected that the road will be constructed to the international boundary before Dec. 1. Work has been begun on the Ontario & Rainy River road which will branch off in a northwesterly direction, opening up the iron region.

The Cleveland Iron Mining Company, Chapin Mining Company and Penokee and Gogebic Development Company are among the concerns whose sales and shipments so far this season are very light. They refused to sell ore at the very low prices of a few weeks ago and are now in a position to take advantage of an improved market. They have relations with lake transportation companies that will permit of a heavy movement of their product if it is desired.

Work has been discontinued at the mill of the Republic Reduction Company. The rock first treated proved far richer in iron than that subsequently encountered. The depressed condition of the market is also against iron ore reduction when good mines can not be worked at a profit.

It is claimed that a pump soon to be placed in operation at the Samson mine by J. M. Sellers of Chicago will, with a  $\frac{7}{8}$ -inch steam feed, lift 8,000 gallons of water 202 feet a minute. The pump is said to have a very short stroke and a peculiar valve movement.

## Light Isle Royale.

Among other aids to navigation that will be demanded of the next congress is the re-establishment of the Rock Harbor light on the northeastern part of Isle Royale, Lake Superior. On the Rock of Ages at the southwest end of this island a light and fog signal are also needed, but the Rock Harbor light is of special importance on account of the increasing trade to Port Arthur and Fort William. Cleveland coal dealers are now selling about 150,000 tons of bituminous coal every year to consumers at Port Arthur and Fort William and the trade in anthracite coal shipped from Buffalo is also increasing. Port Arthur also ships some grain to Buffalo, and American vessels are getting the benefit of this trade. It was on this part of the island, just east of the location of the old Rock Harbor light, that the steamer Algoma was lost. Henry Beatty, manager of lake traffic for the Canadian Pacific Railway, says in a letter to the REVIEW regarding the loss of the Algoma:

"It was clearly shown by the evidence which I had taken as to loss of this steamer that had there been a light and fog whistle on the east or northeast part of Isle Royale this ship in all human probability would not have been lost. Everything went well with the Algoma until she was struck by a heavy snow-storm, near the upper or northeast part of this island. The captain thinking he could not make Passage island in this blinding storm, and thinking he had plenty of room to turn about, concluded to go back into the lake and wait for daylight, or until the storm ceased. It was while turning around that the ship struck the reef which extends from the island for quite a distance into the lake."

"Apart from the regular lines of steamers trading to Port Arthur and Fort William, there are a very large number of United States vessels constantly employed in carrying coal from Cleveland, Toledo and other lower lake ports to Fort William, which traffic is steadily increasing. There is no point on the entire chain of lakes where a light and fog whistle are more needed than the northeast point of Isle Royale."



### The Freight Situation.

Ore freights are again strong at \$1 from Ashland, 90 cents from Marquette and 65 cents from Escanaba. The market was a trifle dull during the first two days of the week and at least two boats were forced to accept 95 cents from Ashland, but there is again a fair demand for tonnage, and it is doubtful if the 90-cent rate from Marquette will be accepted while the rate from the head of the lake is at \$1. Capt. James Davidson's four big steamers were placed on the market Saturday and it was thought that they had been put in for the remainder of the season, but as far as can be learned they secured only a little ore from Pickands, Mather & Co., 'Two Harbors' shippers, and that at no advance over present rates. One or two ore shippers have sought more tonnage to run for the balance of the season to the head of Lake Superior but they refuse to pay more than \$1 for it. Vessels could be secured on such a contract at \$1.10.

Lake Superior coal is not so plentiful as it has been and there is a disposition to reduce the Duluth rate to 45 cents but as yet no change has been announced and rates remain at 50 cents to Duluth and Marquette, 55 cents to Portage, 60 cents to Milwaukee, Chicago and Racine, 50 cents to Manitowoc, 45 cents to Escanaba and Bay City, 35 cents to St Clair river ports and 30 cents to Detroit. One shipper having a large quantity of Green Bay coal to go forward refuses to pay more than 50 cents freight but there is little of it moving.

Duluth has 2,061,331 bushels of grain in store as against 1,818,390 bushels at this time a year ago and 2¼ cents a bushel is offered on shipments to Buffalo with indications of an advance to 2½ cents.

### Lake Superior Coal—June Canal Report.

One interesting feature of the St. Mary's Falls canal report for June is the statement regarding coal going to Lake Superior. The coal movement through the canal during April, May and June of this year aggregates 806,291 tons as against 684,729 tons during a corresponding time in 1890, or a gain of 121,562 tons. This gain is, of course, mainly in soft coal. The coal tonnage of the canal during May and June of this year was greater than during any other two months in its history.

The report of June shows a total freight movement of 1,234,211 net tons, while the number of passengers was 4,066. The movement of the different kinds of freight through the canal was:

	East-bound.	West-bound.
Coal.....	.....	390,674 tons
Flour.....	456,815 bbls.	25 bbls.
Grain.....	.....	5,400 bu.
Corn.....	239,392 bu.	.....
Wheat.....	2,421,461 bu.	.....
Building Stone.....	8,704 tons	.....
Copper.....	9,444 tons	.....
Manufactured Iron.....	.....	6,577 tons
Iron, ore.....	526,152 tons	.....
Iron, pig.....	3,271 tons	.....
Salt.....	.....	40,897 bbls.
Lumber.....	65,717 M feet	.....
Silver, ore.....	450 tons	.....
Unclassified freight.....	11,720 tons	39,847 tons
Passengers.....	1,731	2,335

The ore movement through the canal from Lake Superior, to July 1, aggregates only 741,207 net tons against 1,642,931 net tons on the corresponding date a year ago.

### Congressional Visitors.

Mr. B. L. Pennington presided at the third meeting Wednesday of Cleveland vessel owners and others interested with them in the entertainment of members of the river and harbor and commerce committees of the United States senate and house. Arrangements were made for a visit this (Thursday) morning to the shipyards and other places of interest in Cleveland and a trip to Ashtabula on a special train in the afternoon. Leading citizens of Cleveland will join in receiving the distinguished guests here and a committee will accompany them to Detroit, leaving Cleveland on the steamer Fesenden at 9 a. m.,

Friday morning. In Detroit the party will be the guests of Senator McMillan. A yacht ride to the flats, to be given by the Inland American Yacht Club, a day at the St. Clair club and visits to places of interest in and around Detroit will be features of the programme before the visitors leave for Mackinaw where they will be entertained by Congressman Stevenson.

Congressman Taylor of the Cleveland district has been planning in another way to acquaint representatives in different parts of the country with the importance of the lake traffic. He has sent invitations to a very large number of congressmen asking them to come at any time during the season to Cleveland and make the trip to Lake Superior on any of the freight boats having passenger licenses and in this he will be assisted to the fullest extent by the vessel owners. He has already received a number of replies from members in different parts of the country who have accepted the invitation.

### Lake and Seaboard Prices on Ships.

The following schedule of bids from the light-house board on the four light-ships for the Atlantic coast, for the construction of which F.W. Wheeler & Co., of West Bay City will receive the contract, is interesting, as it shows the proposals of builders on the seaboard as well as those of the lakes:

Name and Address of each Bidder.	For No. 51.	For No. 52.	For No. 53.	For No. 54.	For all 4 vessels.
Chas. Reeder & Son, Baltimore, Md.....	\$ .....	\$ .....	\$ 65,450	\$ 65,450	\$ .....
Harrison Loring, Boston, Mass., provided bids for two are accepted less \$2,100 on each vessel as per telegram.....	66,000	66,000	66,000	66,000	264,000
Samuel L. Moore & Sons Company, Elizabeth, N. J..	63,500	64,415	65,065	65,065	255,445
Pusey & Jones Co., Wilmington, Del.....	.....	68,000	.....	.....	.....
David Bell, Buffalo, N. Y.....	45,500	.....	.....	.....	.....
Craig Ship Building Co., Toledo, O.....	52,738	50,338	50,838	50,838	199,920
Union Dry Dock Co., Buffalo, N. Y.....	60,000	65,000	67,000	67,000	259,000
Detroit Dry Dock Co., Detroit, Mich.....	.....	.....	.....	.....	230,000
F. W. Wheeler & Co., West Bay City, Mich.....	47,900	48,000	48,100	48,100	189,300
Cleveland Ship Building Co., Cleveland, O.....	61,000	61,000	61,000	61,000	240,000

Samuel L. Moore & Sons Company of Elizabeth, N. J., proposed, in addition to their bid of \$255,445 for all four vessels, to build Nos. 53 and 54 for \$128,980. The bid of the Pusey & Jones Company of Wilmington, Del., asked for seven months in which to build one of the boats, No. 52.

### Official Numbers and Tonnage.

The bureau of navigation, William W. Bates commissioner, assigned official numbers to the following lake vessels during the week ending July 4: Steam—Aida, Oswego, 20.80 tons gross, 10.40 net, No. 106,850; Edward Gillen, Milwaukee, 57.96 tons gross, 28.98 net, No. 136,214; Lindrup, Grand Haven, 42.11 tons gross, 28.58 net, No. 141,147; Straightaway, Port Huron, 50.57 tons gross, 37.43 net, No. 116,424. Sail—Restless, Cleveland, 7.97 tons gross, 7.58 net, No. 110,925; Sylvia, Cleveland, 8.79 tons gross, 8.36 net, No. 116,423; Lizzie D., Detroit, 48.84 tons gross, 48.84 net.

### CHICAGO LAKE INTERESTS.

WESTERN OFFICE, MARINE REVIEW,  
No. 210 So. Water Street, CHICAGO, Ill., July 9.

The picture of Capt. Ira H. Owen, which the REVIEW prints elsewhere has a somewhat pathetic history. Something over a year ago, I was in the captain's office, and laughingly asked him for his picture as I wanted it for the REVIEW. We talked awhile, and then I asked him seriously to have a good picture taken—he hadn't had one taken for many years—in order that it might be printed with a sketch of his life in the REVIEW. He said he would have one taken and put it in his desk, so I could get it when I wanted it. Not long afterward I went to Spokane, Wash., and forgot all about Captain Owen's picture. When on Thursday last I heard of his death, I went once more to the office and there found William R. Owen who gave me a sketch of his father's life. As I was about leaving I remembered the picture. "I am certain," said I. "there is a picture in your father's desk for me." William remembered Capt. Owen had had a picture taken about a year ago, but had never seen it in the office. Together we searched, but for a time we did not find it. "The picture is in the desk somewhere," I remarked, "as your father was a man of his word." At last we found it, all covered with dust. The REVIEW has it



this week, but Capt. Owen, it pains one to think, passed into his reward, of which in his strong christian faith he had no fear, before the REVIEW did itself honor in printing it.

Every marine man will regret that Capt. Ed. Napier has got into trouble in a detestable war of excursion boats on the lake front. Capt. Napier has to his credit some of the bravest and most thrilling feats ever accomplished by a tugman on the face of the earth. His rescue of workmen on the water works crib two years ago was for cool nerve and careful daring without an equal in the tug history of this port. If life was at stake Capt. Napier has risked his own without thought of danger. He might be called the king of tugmen. It is unfortunate that he should become involved in wrangles that may deprive him of his license and cast a shade on his magnificent achievements. Last season he was driven off the lake front by the excursion boats with which he is now at war. He was thoroughly angry, no doubt, at the renewal of these tactics, but a resort to collisions while boats are filled with passengers is not in order.

The board of United States engineers to pass on Canal street bridge as an unreasonable obstruction to navigation will meet in Judge Gresham's court room this (Thursday) afternoon. The board consists of Col. Ludlow, Major Davis and Capt. Marshall. The property owners who had Canal street bridge placed there are to make a fight before the board, but little good it will do them. The bridge is doomed. The position of the marine interest is that the bridge should be removed until the land for the opening of the street and the south draw has come into the possession of the city and then replaced when an adequate channel can be given. For once the press of the city is at the back of the marine interests for the improvement of navigation in Chicago river.

I am inclined to the belief, putting this and that together, that the excursion on the Saranac was the unwitting means of stopping the worse blow ever aimed at Chicago's marine interests. The Northern Pacific scheme to steal a third of the river from Taylor street south, under plea of straightening the river, would have gone through with its other ordinance were it not for the public sentiment aroused by the excursion. The lake marine can not be too thankful to the line agents for that excursion up the river and the furore it created.

### Mythical Mr. Bancroft—Canadian Marine.

Special Correspondence to the MARINE REVIEW.

KINGSTON, Ont., July 9.—A scandal has been raised at Ottawa in connection with the letting of the contract for the new dry dock in Kingston. It appears that the tender of one Bancroft, \$260,000, was the lowest. Before the contract was awarded he wrote to the minister of public works asking that M. Connolly be accepted as his partner. Connolly had a tender in also, but it was high. The partnership was acknowledged and the firm received the contract. The question has been asked in parliament, "Who is Bancroft?" but as no one seems to know him, therefore it is the general opinion that he is a myth. A man by that name rented a box in Kingston post office, but as the clerk who kept record of boxes at that time was convicted of stealing, no information about Bancroft can be had from that source. As it is, work at the dock is still going on and efforts will be made to have it finished inside of two months.

Joseph Garvey, fireman on the steamer Rhoda Emily, had her entire crew arrested in Ogdensburg. While at Prescott the crew received a free ration of whiskey, after which the steward hit Garvey with a cleaver and would have further mutilated him had not Engineer Wilcox interfered. The steward cleared to Canada and Garvey is in a critical condition in the hospital in Ogdensburg.

About 150,000 bushels of corn arrived here from Chicago last week. Forwarders have no reason to complain about quantity. Charters have been made at that city for 112,000 bushels more.

The new steamer Bon Voyage has begun her regular trips between Rochester and the Thousand islands. On her first trip she had fifty passengers but since then she has done little or nothing owing to the unfavorable season for outing. None of the excursion steamers have paid the interest on their cost this season. If they get two months of running they will do well. Other seasons they had full three months and made money.

The Grantham has been chartered to carry 7,000 tons of coal for the K. & P. Railroad. To give an idea as to the condition of freight rates it might be stated that the Kingston and Montreal Forwarding Company carrying steel rails from Montreal to Port Arthur at \$3 a ton.

There is trouble brewing here among the coal heavers. They formed a combine not to unload for less than 18 cents a ton. One of the members took a contract on the quiet at 14 cents per ton and finished the job before his rate was discovered. He paid his men full wages, however. It appears the men have decided not to work for him again unless he brings his figure up to 18 cents, or 4 cents more per ton than he wants.

Another whaleback owned by the Standard Oil Company of New York will soon be on her way to the Atlantic where she will carry naptha. The channel work done recently in the Galoup rapids in the river St. Lawrence is said not to be giving satisfaction. Obstructions still exist.

### From the Saginaw Valley.

Special Correspondence to the MARINE REVIEW.

WEST BAY CITY, Mich., July 9.—F. W. Wheeler returned Monday from Cleveland where he went to see what could be done with the financial tangle into which the recent purchasers of the Ossifrage had got the vessel. Mr. Wheeler brought the boat away with him, having taken her back as the purchasers were unable to fulfill their contract. The Ossifrage has proven something of an elephant in the hands of half a dozen, more or less, of would be purchasers. Mr. Wheeler built her for himself in the first place and ran her for a time in the Delta Transportation Company's line. Afterwards the Soo City went on in her place and the Ossifrage was sold. But the purchaser did not keep her and Mr. Wheeler again had the boat on his hands. This performance was gone through with two or three times before this last time, when the Cleveland parties took hold of her. The Ossifrage will be laid up here for the season.

The schooners Harold, Celtic and Adriatic will tow with the "Big Four" during the season. The boats will be operated by the Davidson Transportation Company until a purchaser can be found for them. The following officers are in command: Capt. A. A. Cox of Port Huron, City of Berlin; Capt. Robert Jones of Buffalo, City of London; Capt. McEachern of Buffalo, City of Glasgow; Capt. Michael Madden of Saginaw, City of Paris.

The vesselmen have had an agreement with the 'longshoremen' that when freights went down the 'longshoremen's' wages should also take a drop, and that when prices went up again they should receive a corresponding increase in wages. Now that freights have taken a tumble the 'longshoremen' refuse to accept a reduction in wages, and are receiving 45 cents an hour, as formerly. As the union is all powerful here it is more than probable that the vessel owners will be obliged to submit to the demands of the men.

### Heavy Coal Shipments From Toledo—Tug War.

Special Correspondence to the MARINE REVIEW.

TOLEDO, O., July 9.—Marine matters have brightened considerably at this port. Coal shipments are especially heavy. The movement of coal and ore at the Hocking Valley and Ohio Central docks during June was as follows:

	Coal shipments.	Ore receipts.
Hocking Valley.....	105,000 tons	22,000 tons.
Ohio Central.....	51,300 "	27,820 "

The prospects are also good for a very heavy movement of grain as soon as harvest is over. The crops have been good and the expectation is for a very heavy demand for grain tonnage. The package freight business is also very active. Representatives of both the Wabash and Clover Leaf lines say they have all they can do at good freight rates.

A full sized tug war of good proportions was opened here last week and the end is not yet. Early this season a tug association was formed, taking in all the harbor tugs except the big steel tug S. C. Schenck. The Schenck is one of the most powerful tugs on the lakes and while running wild came in for a good share of the business. Now Mr. Schenck, owner of the tug bearing his name, has purchased in Chicago two more first class tugs, the F. S. Butler and the Uncle Sam, as mentioned in the MARINE REVIEW last week. With these to help the big tug he has cut rates and opened out wide for a war. In consequence of this the tugs are again running far out into the lake after tows and before the season is over much good fuel will have been wasted.

### More Tugs for Lake Michigan.

Special Correspondence to the MARINE REVIEW.

GRAND HAVEN, Mich., July 9.—Duncan Robertson has begun work at his yard on two fish tugs, one for Capt. Geigan of Charlevoix, 75 feet over all, 15 feet beam and 6 feet 9 inches hold. The engine 14x16 will be built by Bloecker & Co. of this city and the boiler, 5 feet 6 inches by 11 feet will be built by Johnston Bros. The other boat will be 70 feet over all, 14 feet beam, 5 feet 9 inches hold for Capt. Smith of St. Joseph. Her engine will also be built by Bloecker & Co. and the boiler by Johnston Bros. The engine will be 13x14 inches.

The steamship Ionia has secured an ore charter for eight trips, Escanaba to Ohio ports. The Ionia and barge Mary A. McGregor were the last of the large fleet owned here to go into commission for the season.

Government Engineer E. C. Dunbar, wife and son are summering at Highland Park hotel. Mr. Dunbar is here in charge of the new harbor work.

The elegant new steamship Atlanta has taken the place of the old propeller Menominee on the Goodrich line between Chicago and this port. The Atlanta with her sister ship, the City of Racine, give daily service. Philip Roth who was chief engineer of the City of Milwaukee, now fills the same position on the Atlanta.

THE "MARINE REVIEW" FOR ONE YEAR AND "BEESON'S HAND BOOK"—\$2.50.



# MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

JOHN M. MULROONEY, . . . . . } PROPRIETORS.  
F. M. BARTON, . . . . . }

HOMER J. CARR, . . . . . Associate Editor and Manager Chicago Office,  
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The books of the United States treasury department contain the names of 3,510 vessels, measuring 1,063,063.90 tons in the lake trade. In classification of this fleet the lakes have more steamboats of 1,000 to 2,500 tons than the combined ownership of this class of vessels in all other sections of the country. The classification is as follows:

Class.	Number.	Tonnage.
Steam vessels .....	1,527	652,922.25
Sailing vessels.....	1,272	328,655.96
Canal boats.....	657	67,574.90
Barges.....	54	13,910.09
Total.....	3,510	1,063,063.90

According to the report of William W. Bates, United States commissioner of navigation, 46 per cent. of the new tonnage of the country was built on the lakes during 1889. This is a percentage greater than the work of the Atlantic coast and western rivers combined, and almost equal to the whole work on the Atlantic and Pacific coast. In 1890 the tonnage built on the lakes is but very little less than that built on the Atlantic and Gulf coasts. Tonnage built on the lakes during the past five years was as follows:

	No. of boats.	Net Tonnage.
1886.....	85	20,400.54
1887.....	152	56,488.32
1888.....	222	101,102.87
1889.....	225	107,080.30
1890.....	218	108,515.00
Total.....	902	393,597.03

St. Mary's Falls and Suez canal traffic: Number of boats through St. Mary's Falls canal in 1890, 234 days of navigation, 10,557; tonnage, net registered, 8,454,435. Number of boats through Suez canal during 1890, full year, 3,389; tonnage, net registered, 6,890,014.

Annual tonnage entries and clearances of the great seaports of the world, for 1889: New York, 11,051,236 tons; all seaports in the United States, 26,983,315 tons; Liverpool, 14,175,200 tons; London, 19,245,417 tons.

Tonnage passing through Detroit river during 234 days of navigation in 1889, amounted to 36,203,606 tons. Ten million tons more than the entries and clearances of all the seaports in the United States, and three million tons more than the combined foreign and coastwise shipping of Liverpool and London.

Entered at Cleveland Post Office as Second-class Mail Matter.

MR. J. M. GOODWIN of Sharpsville, Pa., one of the engineers connected with the Pennsylvania ship canal scheme, attempts in a recent issue of the Iron Trade Review to refute some statements made by this journal regarding the uselessness of such a canal as that proposed by the Pennsylvania interests in event of it being built. The MARINE REVIEW has been forced into answering in a general way some claims made in support of this scheme, but the whole matter has not at any time been considered of sufficient importance to give space or time to detail in connection with it, when first principles that render it unworthy of attention are so well understood by practical men on the lakes. Mr. Goodwin has been to Cleveland and other lake ports and has met and talked with such representative men as Mr. George H. Ely, members of the firm of M. A. Hanna & Co. and others who are thoroughly competent to explain at first thought the reasons why such a canal would be unserviceable. He has been told by these judges that he is working in a lost cause. He did not find in all the lake region a single vessel owner or shipper whose views differed from those advanced by the REVIEW. He was told that his canal would not be built large enough to accommodate vessels of the modern type, that the delay to a craft worth \$100,000 to \$200,000 in navigating an artificial channel would be enormous and that in any event the waterway which he proposes has no end. It is doubtful if even the furnace owners of Pittsburgh can be found to indorse the

scheme and they certainly do not appear in connection with it. It is enough to say now that any discussion regarding it is not considered of interest to the readers of this journal, who have no thought of the canal even being built.

IN the Iron Age, issue of June 25, the Cleveland correspondent gives out this startling information: "The ore unsold this spring amounted to only about 100,000 or 150,000 while the initial purchase in May, given exclusively in this paper, aggregated 650,000 tons. It is not thought that the total sales for this season will greatly exceed 600,000 tons." The Iron Trade Review reprints the absurd statement, claiming that the Iron Age is presenting "news" of an ancient history character and referring the New York publication to the Iron Trade Review of May 28 for the same information. Surely our esteemed Cleveland contemporary must have overlooked the figures in the correspondence to Iron Age. Everybody in the ore business in Cleveland knows that there was over 1,000,000 tons of unsold ore when the sales of 1891 began, and the statement that the total sales of the season would not exceed 600,000 tons is so ridiculous as to require no comment.

"SHIPBUILDING on the lakes will amount to nothing for three to five years to come" is an expression heard in many quarters. This is undoubtedly true as far as wooden vessels is concerned, and may be practically for all time. At Capt. James Davidson's West Bay City yard there is \$100,000 worth of oak timber and it represents a very large portion of all the timber of that kind in the Michigan country. But it is not on account of the scarcity of oak in the lake section that the wooden vessel may be said to have seen its best day. The transportation business of the lakes is gradually falling into big hands and large, powerful steel ships will be in demand when the present period of depression blows over and there is a call for more floating property.

## Barges for Transportation of Oil.

The Standard Oil Company ships large quantities of oil to the northwest by lake but it is all in barrels. Tank boats have not been used to carry the oil in bulk, for the reason that the boats would be greatly delayed in getting return cargoes on the lakes and would be put to extra expense in being cleaned every trip before taking on cargo other than oil. Some of the tank boats engaged in the foreign trade for the Standard are said to return to this country with crude oil to be refined, while the condition of freights in the coasting trade on the Atlantic admits of the employment of the tank boats in carrying the oil only one way, returning light in most cases. On the lakes it is different as the freight on cargo bound up, especially oil in barrels, is always so low as to act against bulk shipments. The establishment of an immense works at Whiting, Ind., will also prove detrimental to the lake trade in oil, as the Standard will supply a large portion of its northwestern trade through this refinery. It is not probable therefore, that the American Steel Barge Company, builders of the whales in which Mr. John D. Rockefeller is interested, will build any of the tank boats for service on the lakes. One of these boats for the Standard company, now about ready for launching at West Superior, will be used in the Atlantic coastwise trade and will be known as S. O. No. 55. The barge is 125 feet long and 10 feet deep, with 30 feet beam. When afloat she will resemble one of the old-style, low-deck lake steamers. She has a low center dome measuring two-thirds of the deck in the middle. No spars will be carried. The boat contains three tanks which extend the full depth and beam of the boat, and together occupying 66 feet in the center of the barge. The spaces at either end are vacant and are used to give buoyancy to the vessel. There are no air compartments as in the whaleback barges. The three tanks will contain five hundred thousand gallons of oil.



### Around the Lakes.

The steamer Huron City was fined \$50 at Chicago for running on an expired license.

F. W. Gilchrist of Alpena bought the schooner John Rice on a forced sale at Port Huron for \$400.

Dredging is needed at Lorain. The schooner B. L. Pennington found bottom twice in entering that port a few days ago.

Ida Halverson of Milwaukee has sold to William Rong of Sheboygan, Wis., two-thirds of the schooner Dawn for \$1,300.

The Lake Superior company's steamer Griffin unloaded 1,960 tons of ore at the Lackawanna docks, Buffalo, in sixteen hours.

The John Doty Engine Company, Toronto, is putting a pair of new compound condensing engines in the Canadian tug Charlton.

Rumor has it that the St. Paul railway contemplates the erection of docks at Menominee, Mich., and the building of a road into the iron range.

It has been decided to build this year at St. Joseph the new lighthouse supply station for which an appropriation of \$35,000 was made by the last congress.

Carkin, Stickney & Cram, Saginaw dredging contractors who purchased the lumber schooner William Raynor, have rebuilt her and she is again in commission.

Capt. James P. Devney of Ashtabula has christened his new tug the John P. Manning in honor of the popular agent of the Lake Shore Railway Company at Ashtabula.

From the Columbus and Hocking Valley docks, Toledo, 101,426 tons of soft coal was shipped during June. This is 16,000 tons more than was ever shipped before during a corresponding period of time.

Fayette, Mich., where the Jackson Iron Company operated a blast furnace for a number of years, is being deserted since the iron company discontinued business. Everything of value is being removed from the place.

Toledo vessel owners expect to have new wheat to ship by the 15th inst. In Chicago it is said that shippers can not find vessels to contract for carrying 200,000 to 500,000 bushels of new rye on an offer of  $2\frac{1}{4}$  cents.

Capt. Charles Gilbert, who sailed in the employ of John Kelderhouse of Buffalo for a number of years, commanding the Excelsior, A. C. Maxwell, John Kelderhouse, B. F. Bruce and other vessels, died in Buffalo Monday.

The barge H. F. Church was sold at Tonawanda last week by a deputy marshal to Daniel Mann for \$2,700. She was built at Trenton in 1874, measures 310 tons and this season was rated B1  $\frac{1}{2}$  with a valuation of about \$4,000.

Capt. Edward McNally is in command of the steamer City of Toledo the new side-wheel passenger steamer of Toledo, which is fitted with horizontal triple expansion engines built by the Cleveland Ship Building Company. Alex. Bain of Detroit is chief engineer and R. McMillan of the same city is first assistant. The boat is now in operation.

Capt. McLeod, in charge of the Inland Lloyds Vessel Register, pronounces the new twin screw steamer Virginia, building at the yard of the Globe Iron Works Company for the Goodrich Transportation Company, a finer boat than the City of Paris. Although measuring only 980 tons she will cost \$300,000. The City of Paris measures 5,581 tons.

Members of the Canadian parliament are again complaining of crookedness in connection with the building of the Kingston dry dock. Funds have run out and when the minister of public a few days ago asked for \$60,000 to complete the dock, which he says will be in readiness for vessels about Sept. 1. All papers pertaining to the building of the dock were demanded.

Hickler & Sons of Buffalo who have the contract for the Canadian canal at the Sault have been notified by the Dominion authorities that none but Canadians shall be permitted to be employed on the work. This throws out of employment about 100 American workmen. Canadians were some time ago excluded from working on the canal on the American side.

Dredging Contractor Stickney says four cuts have been made through the bar at Ashtabula and a clear depth of 22 feet is being made with a width at present of 65 feet. He adds that the channel between the piers will be dredged to 18 feet and advises masters of deep laden vessels to pass through the bar channel on a line with the inside of the west pier, hauling over to the eastward when within about 200 feet of the entrance.

The Insurance Company of North America doing a big business on the lakes has lately begun operations in England. In marine and inland risks, apart from fire risks, this company's net premiums during 1890 were \$1,425,210 and losses and claims \$1,030,828, whilst the increase in marine reserve was \$49,957, and decrease in unpaid marine losses \$95,800, the dividends and taxes paid amounting to nearly  $12\frac{1}{2}$  per cent. The reserve amounts to about \$5,000,000 and the company has a paid up capital of \$3,000,000.

The Minnesota legislators who have been investigating the alleged wheat steal at Duluth for the past two months have concluded their work but will make no report until next year. The Grain Growers' Association expresses itself as gratified at the turn of affairs. It maintains that it has established as a fact that 279 000 bushels of wheat has been shipped from Duluth elevators wholly without inspection and that a large part of it was started on its way to Buffalo under cover of night. The representatives of the elevators practically admit that something like 300,000 bushels of wheat was shipped to Buffalo quietly and without inspection but insist that it was bin burnt and had it been posted and thrown on the market would have caused a wheat panic.

### Work of the Ship Yard.

Rogers & Bird of Saugatuck have turned out a good vessel in the stermer Bon Voyage, to be operated by the Rochester, Thousand Islands and Ogdensburg Transportation Company in the St. Lawrence river passenger trade. The boat is 170 feet long, 30 feet wide and 10 feet deep and is constructed of the finest white oak timber. Her engine, a fore-and-aft compound with cylinders 16 and 30 x 26 inches, was built by Wilson & Hendrie of Montague. The boilers are  $8\frac{1}{2}$  x 12 feet. The boat has fifty state-rooms, and her cabin arrangements compare favorably with the best passenger boats on the lakes. She has an electric light plant furnished by the Fisher Electric Company of Detroit.

The new tug built by the Union Dry Dock Company of Buffalo for Knapp & Gillen, Lake Michigan contractors, will cost about \$16,000. The boat will be used for general work in Racine harbor.

The tug to be built by Burger & Burger of Manitowoc for Leathem & Smith of Sturgeon Bay will be 80 feet long over all, 19 feet beam and  $9\frac{1}{2}$  feet hold.

### Commerce Destroyer Pirate.

Pirate is the name that will be given the United States triple screw cruiser No. 12, the boat now building by the Cramps and designed to chase and capture the fleetest merchant vessel. In model she is as much like a merchant ship as it is possible to make a man of war; in fact, it is intended that she shall deceive another vessel at sea until it is too late for escape. The Pirate is the first vessel of her size to which the triple screw system has been applied, and, with a sustained sea speed of 21 knots an hour, will be by far the most useful vessel in the American navy. Though her screws will be propelled by engines having a collective power of 23,000 horses, the conditions in the fire rooms will not be harder than those in an ordinary transatlantic steamer. At normal draught she will be able to carry 750 tons of coal, but her total capacity will be 2,000 tons. All of this will be accomplished on a displacement of 7,400 tons. If twin screws were used over 10,000 I. H. P. would pass through a single shaft, but in this case each shaft transmits only 6,850 and the ship has in addition one more chance in case of a breakdown. The machinery consists of three sets of triple expansion, vertical, inverted cylinder engines, driving the triple screws, the center screw being about four feet six inches below the two others. The coal capacity is very great. At 10-knot speed the pirate will have an endurance of 109 days or a radius of action of 26,240 knots.



### English Rules on Bulkheads

A committee appointed by the English board of trade more than a year ago has just reported with reference to necessary bulkheads in ships of different grades, and the personnel of the committee, Dr. A. C. Kirk, of Napier & Sons, James Lang of Sunderland, James G. S. Anderson of the Orient line and other learned men, gives the report weight and value deserving consideration. Experiments in tanks were made, evidence was taken from experts and valuable data on the manner of subdivision, proportion of freeboard to bulkhead deck, etc. was prepared. The committee recommended that vessels to be safe should be able to float with two compartments flooded, and then the deck should not be nearer the water surface than a provisional "margin of safety line," which would start at a point below the bulk-head deck a distance equal to  $1\frac{1}{2}$  per cent. of the depth of the vessel from deck to keel, and amidship 3 per cent of that depth. The same rule applied to large passenger steamers and small cargo vessels would hamper the latter in cargo space and in loading and unloading, so that allowance was made for different grades of vessels. There was difficulty in making the margin of "safety line" for paddle steamers with two compartments open. The requirements for grades most similar to our lake vessels are as follows: Vessels between 300 and 350 feet long requires sufficient subdivision to float if two of the three foremost spaces or any one of the other spaces are flooded; grade four includes steamers under 300 feet long, which must float with the two foremost or any one of the other compartments filled; steamers or ships carrying cargo only, of between 300 and 275 feet, are required to float with one compartment flooded, and steamers less than 260 feet and ships over 125 feet will be considered safe if they float with a forward compartment filled. The foremost compartments are reckoned aft the collision bulk-head supposed to run from the stem back a distance equal to 5 per cent. of the length. The rule for openings in the bulkheads are very exacting, the removal of any doors being recorded in the logbook. A compartment fitted with a longitudinal bulkhead will be considered as two or more spaces, if the stability is not affected, or list does not put it below the water line, otherwise it is to be treated as one compartment. In order to have this subdivision practice carried out the life-boat and life-raft requirements will be modified for ships adopting the plan.

### Death of John Mullen.

John Mullen, who died at his home No. 480 Detroit street, Cleveland, last week, was a pioneer in the coal business on Lake Erie. He operated docks east of the old government pier and below the present Union depot, doing a cargo coal business, at a time when the facilities for loading did not admit of vessels moving in and out in a day, but the trade even then formed an important part of Cleveland's lake commerce. Mr. Mullen was seventy-one years of age. The funeral on Thursday last was attended by a very large gathering of men of lake interests, showing marked honor to the deceased. Three sons, Martin, Robert and John Mullen, are well known in the lake and coal business in Cleveland and Amherstburg, Ont.

### Notice to Mariners.

Commander Nicoll Ludlow gives notice that the red and black can buoy on the southeast end of Hog island reef, Lake Michigan, is reported to have gone adrift. The black spar buoy off the entrance to St. Joseph, Michigan, will be removed as being no longer necessary.

TRADE publications in England are deserving of great credit for the warm manner in which they are supporting the World's Columbian Exposition. Engineering, one of the great technical publications of London, gives editorial recommendations to the fair almost every week and its illustrations of the buildings and grounds are as fine as anything seen in this country.

### Cleveland Matters.

Gen. Poe gave out this notice Monday: After this date vessels will use the east side of St. Clair flats canal until further orders, as dredges and pile drivers are at work on the west side.

The tugs Joe D. Dudley, Dreadnaught, T. M. Moore and American Eagle have pooled interests in a new line to be known as the White Stack Tug Line, Capt. C. E. Benham, manager. The new line will have offices at 121 East River street.

Mr. John W. Warner, son of Capt. George Warner who has conducted a vessel agency in Cleveland for twenty-three years past, has joined his father in business. John Warner was with the ore shipping firm of Dalliba, Corrigan & Co. and their successors Corrigan, Ives & Co. for several years looking after their vessel business and is thoroughly fitted for his new position.

The twin-screw steamer Virginia will go to Chicago without the formal trial trip contemplated some time ago and it will be necessary to abandon the pleasure trip planned by President Goodrich, on account of the need of having the boat in service as soon as possible. The boat will leave Cleveland tomorrow or Saturday and a great deal of cabin work will be done in Chicago.

### Compound, Triple and Quadruple Expansion Engines.

The subject of the introduction of compound, triple expansion and quadruple expansion engines into large plants on this side of the water is just now receiving much attention. For a long time these engines have been in use in England and on the continent, and a European engineer laughs at the idea of using a plain non-condensing engine where a compound engine could be used to better advantage; but strange to say, in New England, the home of machinery, they are much behind Europe in this matter. In fact, all through the United States the plain non-condensing engine is the one generally used. The compound and triple expansion engines are certainly economical in the amount of coal that is required to run the boilers by which they are furnished with steam. A plain non-condensing engine requires 30 pounds of water converted into steam, the boiler being at 90 pounds pressure, to give one horse power. A compound condensing engine requires 20 pounds of water converted into steam, the boiler being at from 125 to 140 pounds pressure, to give one horse power. Thus it will be seen that to run the compound condensing engine requires one-third less fuel to obtain one horse power than is required to obtain one horse power with a plain non-condensing engine, which is a saving in the cost of coal of from 25 to 30 per cent.

With a triple-expansion engine it requires 13 pounds of water converted into steam, the boiler being at 175 to 200 pounds pressure, to obtain one horse power. Doubling the pressure in the boiler with one-third more coal doubles the power obtained from the engine. Thus it will be seen that the power obtained is greater in proportion than the extra amount of coal used to increase the pressure of steam in the boiler.—Safety Valve.

In placing electrical plants aboard vessels some electricians prefer to use the hulls as a return in making a circuit while others use the double wire, a wire out and a wire home. English authorities now condemn the single wire system as it has been known to produce an error in the ship's compass of from  $3^{\circ}$  to  $7^{\circ}$ .

In the early days of steamships on the Atlantic the steam pressure carried was five pounds only above the atmosphere, and the engines made from 10 to 12 revolutions per minute; the vessels made 8 knots per hour on an average. Now we carry 36 times the pressure, make 7 times the revolutions, but go only  $2\frac{1}{2}$  times faster.—Scientific American.

TORONTO EXCURSION.—The Nickel Plate will sell excursion tickets to Toronto, Ont., from July 6 to 15, inclusive, at special rates, account of the National Education Association. For full information, call upon or write nearest Nickel Plate agent.

DON'T FAIL TO IMPROVE the opportunity offered by the Nickel Plate to all who wish to visit Toronto, Ont. or vicinity. Tickets will be on sale via that line, at special rates, from July 6 to 15. Full information given by agent.



**General Average—Contribution.**

Contributions in general average is sanctioned for damage by water poured upon a cargo to extinguish a fire on board a ship, according to the decision of the United States District Court at Milwaukee, in the case of the Union Mutual Marine Insurance Company of Liverpool vs. the owners of the steamer Roanoke. The court said: "To justify general average contribution three things must concur. First a common imminent peril. Second a voluntary sacrifice. Third a successful avoidance of danger. The first and third conditions are confessedly here present. The second condition is said to be wanting because, as is claimed, the cargo destroyed was not 'selected' for sacrifice, or, in other words, that the loss was incidental and unintentional, not primary and designed. There must be, it is true, a deliberate sacrifice to appease the exigency of the crisis as distinguished from chance result of the operation of the natural elements. But was there not here, within the principle of contribution, such designed injury, such deliberate sacrifice? Both ship and cargo were in the embrace of total destruction. Deliverance was only possible through extinguishment of the fire. There was a certainty that pouring water into the hold to drown the fire would destroy cargo not on fire. That was a necessary result of the act. There was the will of man directing the act working destruction to cargo. There was intentional inundation of cargo. There was design to avert the greater loss of ship and cargo by incurring the minor loss of part of the cargo. That, in my judgment, is equivalent to a voluntary sacrifice, satisfying the conditions of a general average act."

## Commercial Union Assurance Company, Limited, OF LONDON.

**INLAND MARINE DEPARTMENT.****DAVID VANCE & CO.,**

General Agents,

**MILWAUKEE, WIS.**

Local Agents at all Lake Ports.

**INSURES HULLS,  
CARGOES and FREIGHT.**

**Lake Chautauqua—The Queen of Summer Resorts.**

At a lake of cool crystal water, located among the beautiful highlands of the Empire state, over one hundred and fifty thousand people seek each summer season the delightful rest always found in that wholesome atmosphere. Chautauqua—the famous resort—located between fourteen and fifteen hundred feet above the ocean, has unsurpassed facilities for boating, fishing and bathing. When these pastimes are combined with the advantages made possible through the educational and religious organizations, which make Chautauqua lake their summer headquarters, is it surprising that each season, thousands frequent its shores.

With hotel accommodations capable of delighting the tastes of the most fastidious and boarding houses where families may secure commodious rooms and excellent service at reasonable rates, should it be wondered at that people flock from the smoke, dust and heat of our cities to enjoy the pleasures and benefits obtainable on the shores of this "Lake of Springs."

Tourists selecting the Nickel Plate route to this queen of summer resorts, will find accommodations desirable in every appointment. Excellent connection is made for Chautauqua lake at Brocton Junction, N.Y., and from Mayville, N.Y. any point on the lake may be reached via boat or rail. Passengers holding tickets via Nickel Plate to Niagara Falls, may secure stop-over at Chautauqua free of charge.

Be sure your tickets read via the Nickel Plate.

July 30

CHAUTAUQUA LAKE: The Erie Railway will sell excursion tickets to Lake Chautauqua on account of Ohio Teachers' Convention, July 6 and 7, at one-half fare (\$4 35) for the round trip. Good returning up to and including July 13. Call at 141 Superior street, or at Central passenger station, South Water street and Viaduct.

**Insurance Company of North America.**

INCORPORATED 1794.

## LAKE MARINE DEPARTMENT, GEO. L. McCURDY, Manager, Chicago, Ills.

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WILLIAM A. PLATT, Vice-President.

EUGENE L. ELLISON, 2d Vice-Pres't.

GREVILLE E. FRYER, Sec'y &amp; Treas.

JOHN H. ATWOOD, Assistant Secretary.

Capital, paid up in cash..... \$3,000,000 00

Assets..... 8,951,518.83

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Organized under Special Act of the Legislature of Nova Scotia.

Owners of the Coxheath Copper Mines and Little River Coal Mines in Cape Breton, N.S.

The Only Developed **COPPER MINE** in the World of proved large value, located practically at tide water and beside coking coal—consequently sure to become a cheap producer.

**\$1,000,000 of 20 Year 7 Per Cent. GOLD BONDS.** Interest payable in May and November at the office of the **AMERICAN LOAN AND TRUST COMPANY, BOSTON, MASS.**

**\$350,000 of Bonds Already Sold** and devoted to purchase and development of the properties. \$350,000 additional now offered at par and accrued interest from May 1st, 1891, with 50 shares of stock as bonus with each \$1,000 bond. Proceeds to build concentration and smelting plant. Remaining \$300,000 of bonds reserved for future increase of capacity.

**BOARD OF MANAGEMENT.**CAPT. ISAAC P. GRAGG, President and General Manager.  
M. F. DICKINSON, Jr., Auditor.

HON. W. E. BARRETT.

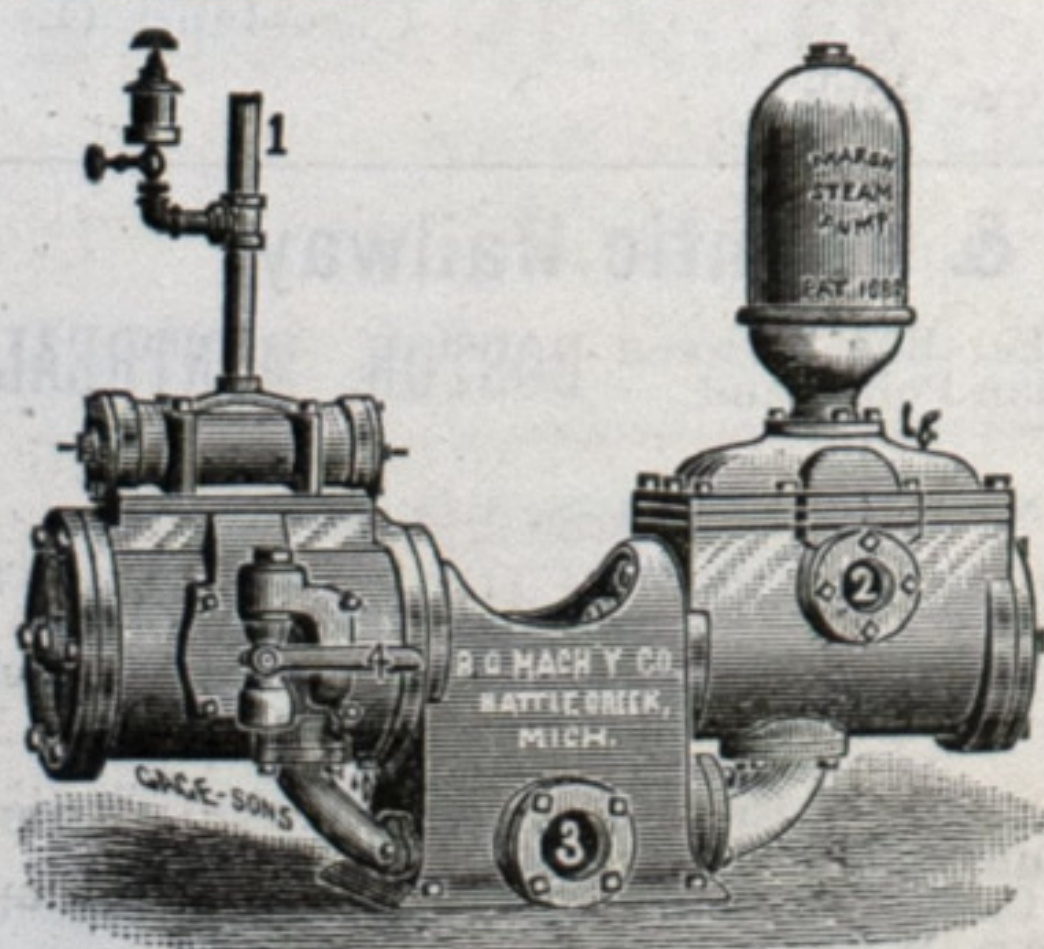
Consulting Engineer—GEO. GRANT FRANCIS, M. E., of London, Eng.

COL. ALBERT A. POPE, Vice-President.

THOS. MAIR, Secretary and Treasurer.

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Consulting Metallurgist—DR. EDW. PETERS, Jr., M. E., Boston, U. S. A.

**Main Office of the Company—95 Milk Street, Boston, Mass.****PROSPECTUS MAILED ON APPLICATION.****MARSH STEAM PUMP,**

Absolute Actuation and Regulation Without Use of Tappets, Levers or other Mechanical Connections.

**FOR MARINE AND STATIONARY BOILERS.**

Smaller Sizes With or Without Hand Pumping Attachment.

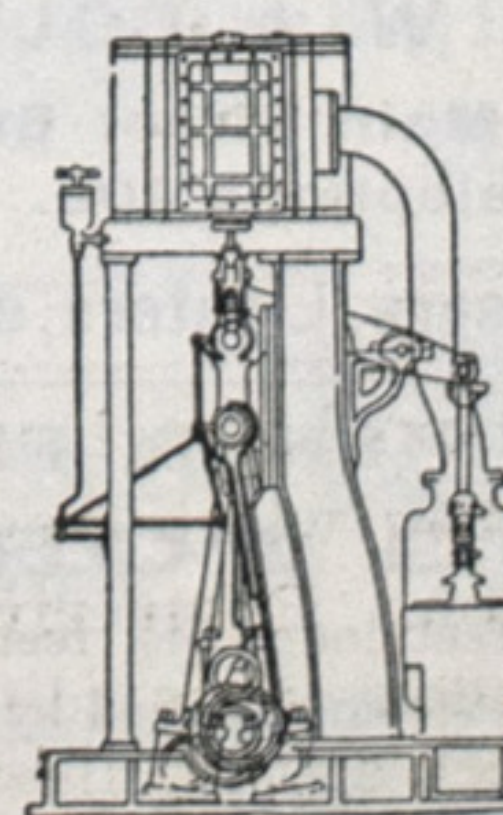
Exhaust Returned to Boiler. Heats Feed Water Forty to Fifty Degrees, according to tests made by Prof. M. E. Cooley, of the University of Michigan.

Steam Valves Actuated by Direct Boiler Pressure.

**Has Fewer Wearing Parts than ANY OTHER Steam Pump.**

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 or **BATTLE CREEK MACHINERY CO., Manufacturers, Battle Creek, Mich.**

**THE O'CONNELL GREASER,**

During the past three years hundreds of marine engines of from 2,000 to 4,000 h. p. have been served, as well as high speed electric light engines.

**RESULTS:**

Sure control of Crank Pin.  
Stoppage of Lard Oil account.  
Perfectly clean Engine  
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Manistee, Mich.  
Dark lines indicate apparatus.



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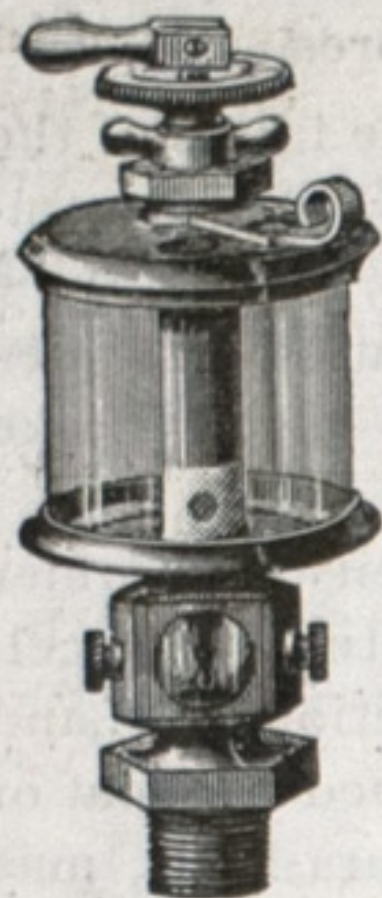
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The Wm. Powell Co.,  
CINCINNATI, O.

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SEND  
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Space under this heading may be used gratis by our advertisers or subscribers to call attention to vessels or any craft, machinery, new or second hand, that they may have for sale. Those wanting machinery of any kind, or wishing to purchase vessels, are invited to take advantage of the same offer. Each item will be limited to three lines. Letters concerning same must mention number attached to item and be addressed MARINE REVIEW, 510 Perry-Payne Building, Cleveland, O.

61—Fish tug for sale—62 feet long, 14 feet beam and 7 feet 6 inches deep.

62—WANTED—To trade valuable real estate for insurable vessel that will carry 500 to 800 thousand feet of lumber, steam barge preferred.

58—Crosby Indicator, used only four times, for sale cheap.

63—DREDGE—At auction Wednesday, July 1, 11 a.m., at a point a short distance west of Willow street bridge, old river bed, Cleveland.

64—For Sale at a Bargain—Steamboat 78 feet over all, 18 feet beam; double engines; hull in first-class condition.

65—For Sale Cheap—Two 10 x 10 Marine Engines with two 4 feet 4 inch wheels; good shafting, heater, boiler, steam pump and connections; or will exchange for small yacht or real estate.

66—Steam barge that will carry 200 tons wanted for balance of season, or longer.

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Acidless Lard Oils, specially adapted  
for Steamboat use.

Will furnish Brand free for Ship Chandlers  
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Tugs, Lighters, Steam Pumps, Hawsers, Hydraulic Jacks and Diving Appliances always ready.

TUG MONARCH, Engine Compound, Cylinder 16 and 30 inches diameter, 30 inch.  
Stroke, Steam Pressure Allowed, 125 pounds.

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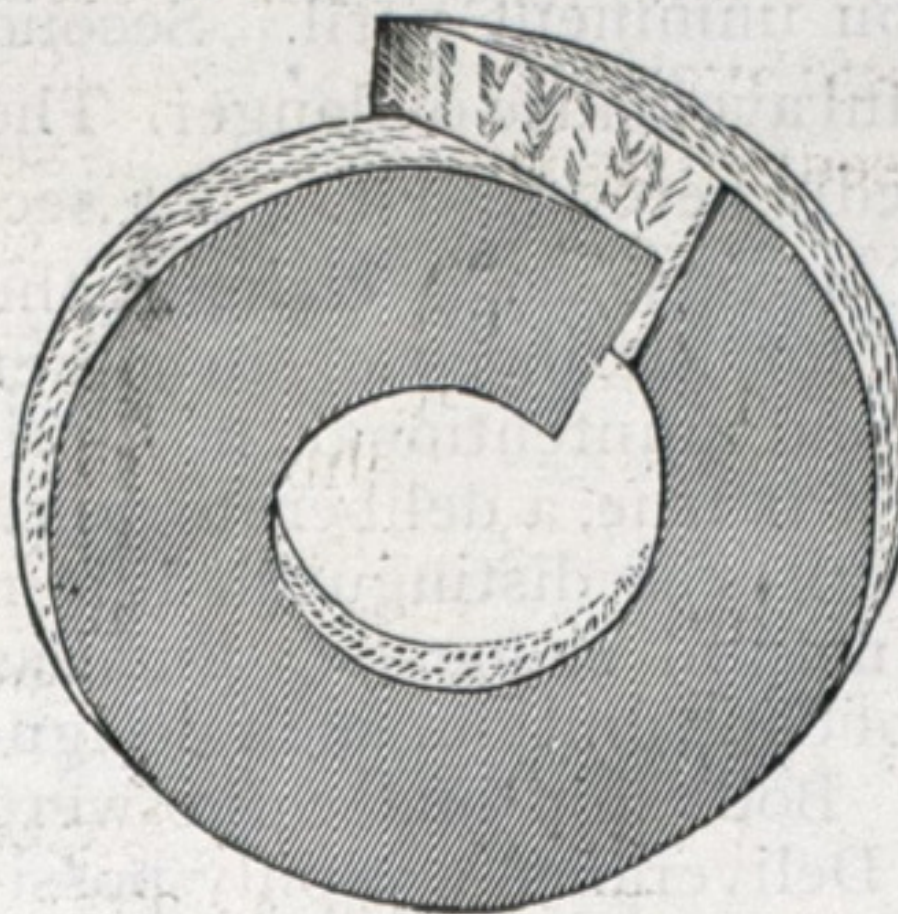
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Pat'd June 1, 1880—The Original Ring Packing.  
For Piston Rods, Valve Stem of Steam Engines,  
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In ordering, give exact diameter of Stuffing  
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Self-Lubricating, Steam and Water Tight.

Less friction than any other known Packing.  
Never grows hard if directions are followed.  
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without this trade-mark and date of patent,  
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Fostoria Passenger.....	6 40 PM	7 00 PM
Local Freight .....	3 50 PM	6 00 AM

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All trains daily except Sunday.

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	Arrive.	Depart.
Youngstown Accommodation.....	*7 15 AM	*6 00 AM
New York and Pittsburg Express .....	*5 15 AM	*8 10 AM
Pittsburg Accommodation.....	*12 30 PM	*11 25 AM
New York & Pittsburgh Limited.....	*9 55 AM	*2 55 PM
Mantua Accommodation .....	*7 20 PM	*4 20 PM
Youngstown Express.....	*9 10 PM	*6 00 PM
New York & Pittsburg Express... ..	*6 50 PM	*11 00 PM

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The short and direct route to Pittsburg, Washington and Baltimore.  
Only 4½ hours to Pittsburg; four trains daily.

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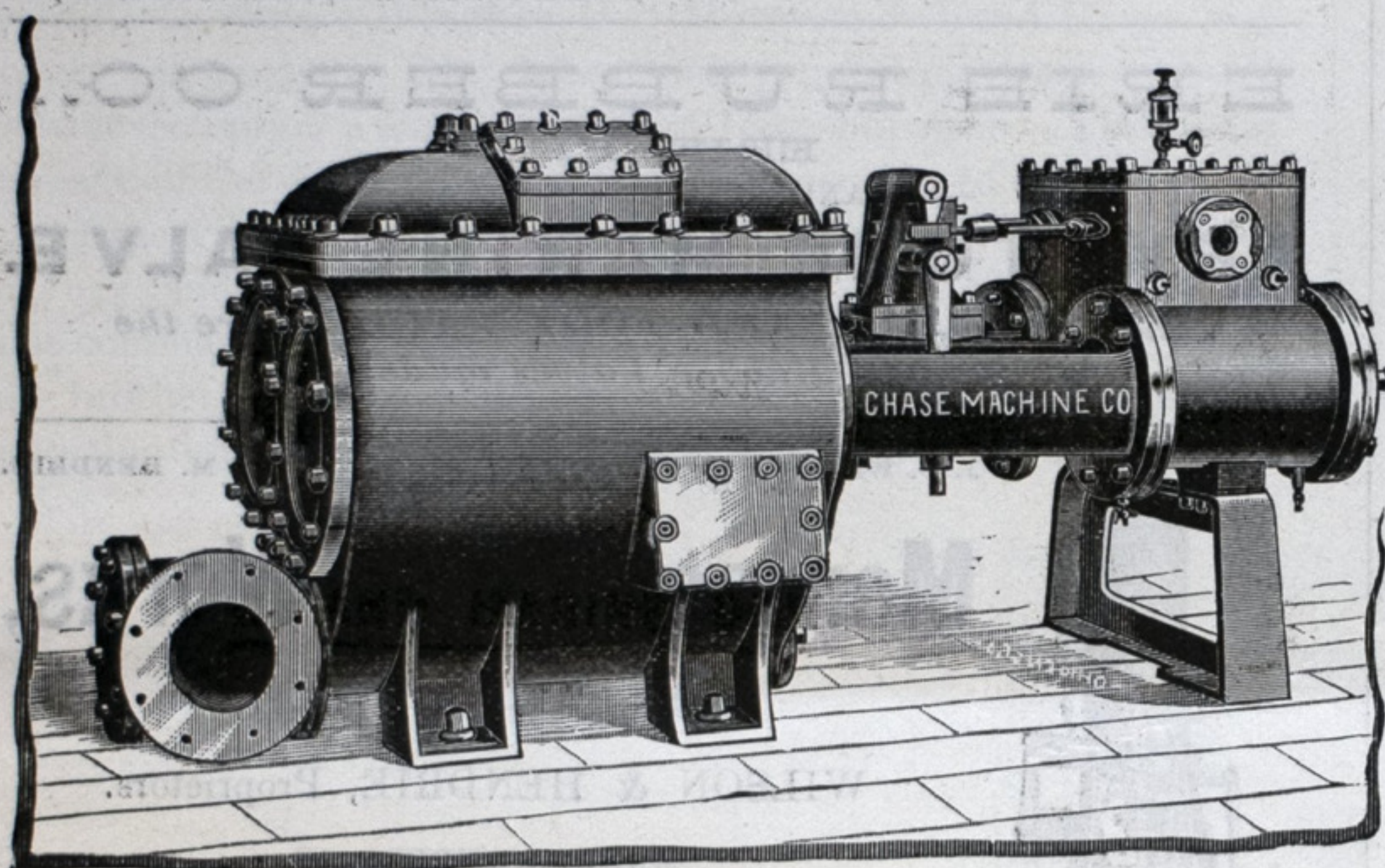


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THE SIMPLEST, BEST and LEAST  
EXPENSIVE PACKING IN USE.

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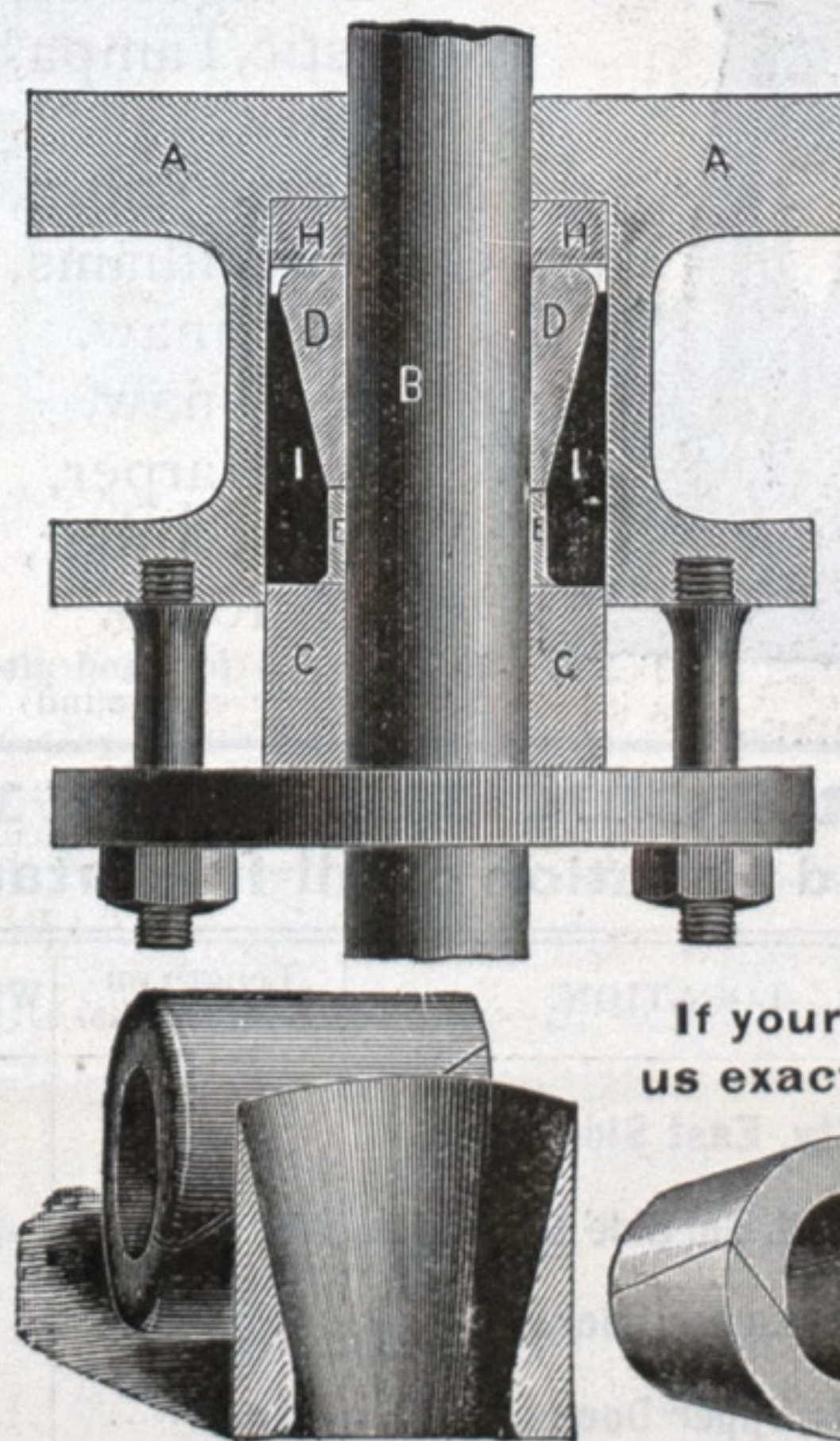
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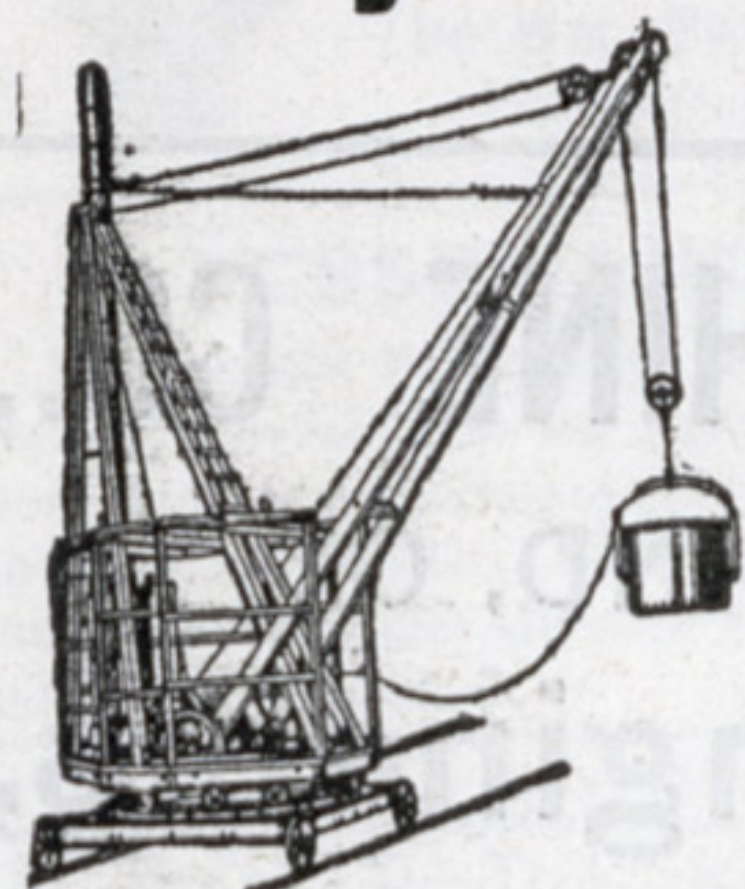
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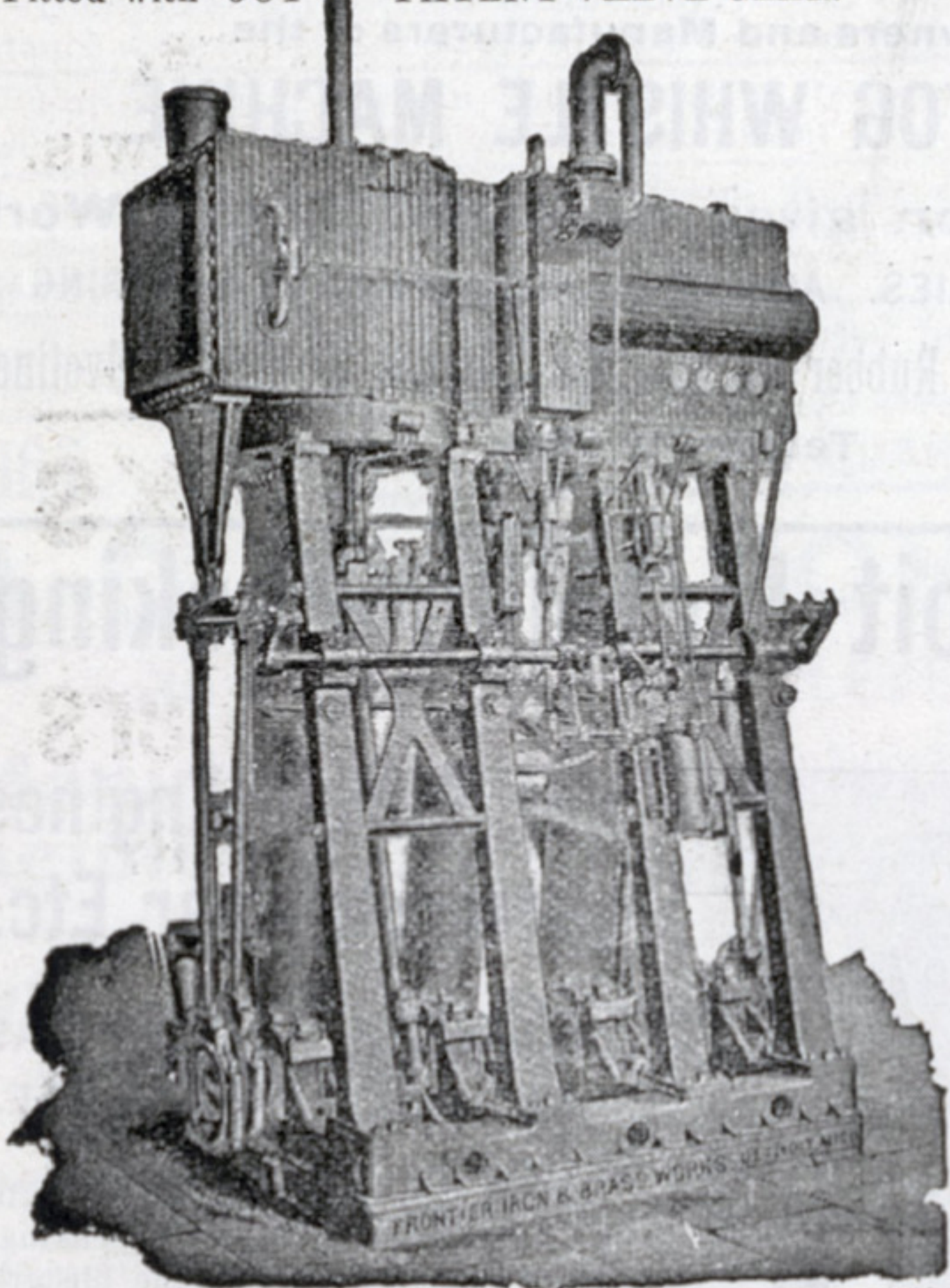
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SELF-LUBRICATING PACKING.**Trade Mark Registered  
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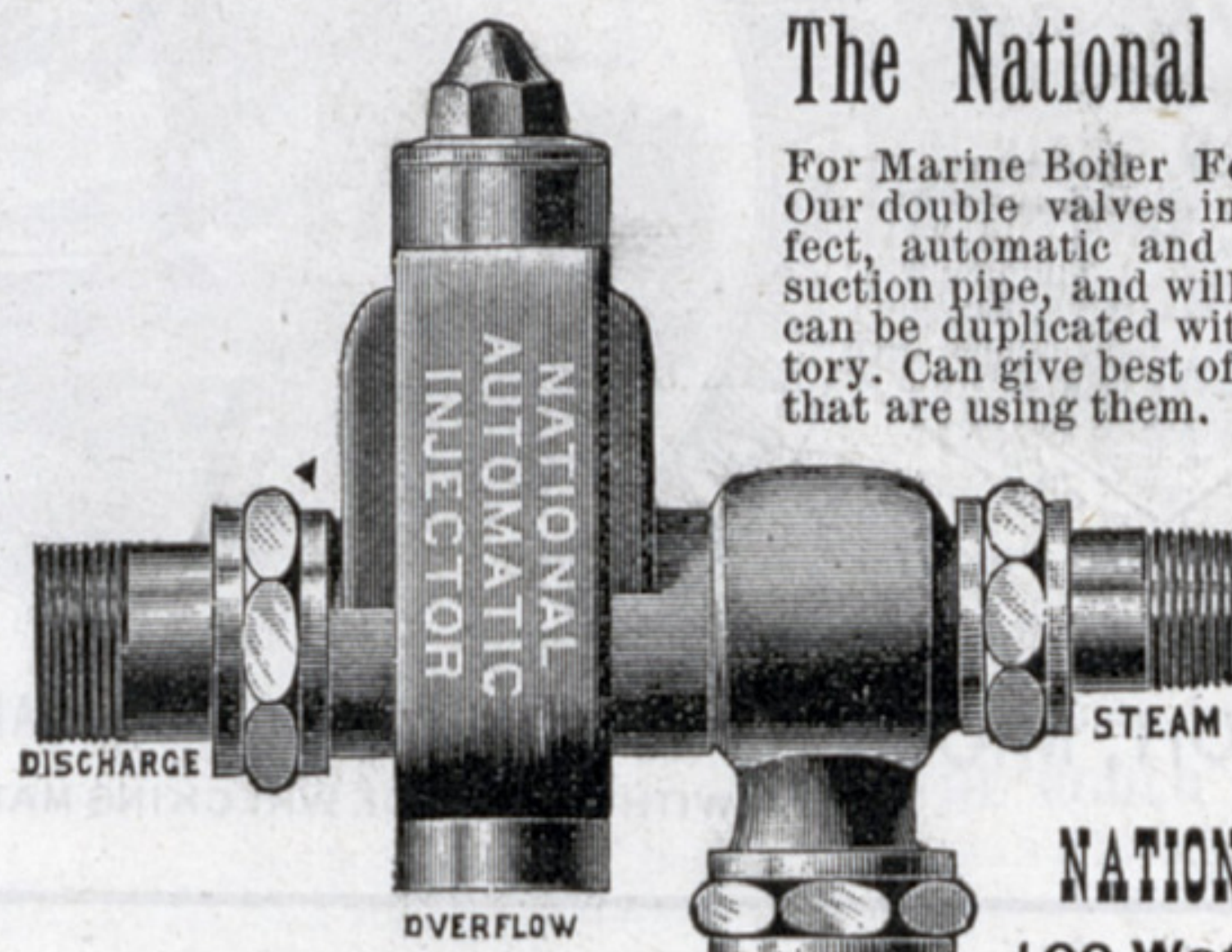
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Clark Dry Dock Co. ....	Detroit, Lower Docks,.....	{ 360 220	{ 68 42	10½ { 9 upper 11½ { 10 end.	.....	Watchman at Dock will call Superintendent.
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